

ABSTRACT

[0040] The present invention is directed to a motor-operated optical shutter for opening and closing the illumination beam path in optical devices. The optical shutter, according to the invention, for the illumination beam path in optical devices comprises a mounting unit which is provided with a diaphragm aperture, a stepper motor which is mounted at the mounting unit, and a shutter element which is connected to the motor shaft of the stepper motor for opening and closing the diaphragm aperture. A two-phase stepper motor with a large full step angle is preferably used. The two-phase stepper motor is connected to a control unit and carries out the required movement of the shutter element at a short distance from the motor shaft. The solution according to the invention provides a very economical and simple optical shutter for optical devices. The commercially available stepper motors that are used have a greater numbers of poles and a fully enclosed magnet air gap field and enable short closing and opening times of the optical shutter. With these stepper motors, the usual disadvantage of a relatively costly control can be eliminated by a simple control method.